The Impact of Ownership Structure and Corporate Governance on Investment Efficiency: An Empirical Study from Pakistan Stock Exchange (PSX)

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Veröffentlichungsversion / Published Version
Zeitschriftenartikel / journal article

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Abstract: The objective of the study is to investigate the impact of ownership structure, corporate governance on investment efficiency. This study uses sample of 50 non-financial listed companies on the Pakistan Stock Exchange (PSX) for the Period of 2010 to 2015. Using Dynamic GGM panel model, the findings reveal that investment efficiency is decreased as the concentration of the ownership increases. Managerial ownership has a positive and significant influence on the investment efficiency. Furthermore, the presence of CEO duality has negative effect on investment efficiency. Moreover, unlike other institutional ownership, presence of Mutual Funds significantly increases investment efficiency in investee firms. We are unable to find significant impact of institutional ownership and board size on investment efficiency. Overall, our results emphasize the important role of ownership structure and corporate governance in determining firm's investment efficiency. The paper adds to the emerging body of literature on corporate governance and investment efficiency relationship in the Pakistan context, which is an important emerging economy.

Keywords: Pakistan stock exchange, Investment efficiency, Corporate Governance, Institutional Ownership, Ownership Structure.

Reference: Reference to this article should be made as: Azhar, A., Abbas, N., & Waheed, A. (2019). The impact of ownership structure and corporate governance on investment efficiency: An empirical study from Pakistan Stock Exchange (PSX). *Pakistan Administrative Review, 3*(2), 84-98.

1. Introduction

This study explores the impact of internal governance (largest shareholders, Size of the board, meetings held by the board, Duality of CEO) and external governance (Institutional Ownership, Mutual Funds) on investment efficiency which explains the idea of efficient investment in firm's asset by an entity. Higher efficient investment in the asset of the firm leads to higher investment efficiency thereby bringing greater performance of the firm. IE is an important apprehension in corporate finance especially in the context of Pakistan, where most firms are family owned and possess strong ownership concentration. Controlling shareholders in concentrated ownership have the power to enjoy personal benefits by appointing management positions of their choice or even enjoy executive positions by themselves, whenever management intentions are towards empire building or to maximize their personal benefits they invest firm's free cash flows of negative NPV projects resulting in overinvestment, in other words they have the power to let go of profitable projects diverting these resources to other firms governed by them and undertake unprofitable projects to enjoy personal benefits which impacts investment decision of the firm leading to lower investment efficiency (Chen, Sung, & Yang, 2017; Jiang, Cai, Wang, & Zhu, 2018).

Similarly, Dyck and Zingales (2004) argues that when controlling shareholders extract private benefits, the value of firm decreases as minority shareholders are willing to pay less for these shares thereby increasing the cost of financing limiting the funds for a fruitful investment opportunity. Efficiency and quality of investment is reduced by information asymmetry arising between inside controlling shareholders and outside investors in a family-controlled governance of a firm which limits cash control as family owners are reluctant to publish underpriced equity of their firms because they will lose the benefit of control (Gugler, 2003).

Unlike developed countries who have a strong corporate governance, the corporate governance of developing countries are weak thus providing a poor check on managers, managers under strong corporate governance prefer to finance investment through internal cash flows while managers under weak governance are able to approach equity market to finance investment, improved investment can be achieved by strong governance therefore distinction in governance systems determine investment decisions thereby leading to investment efficiency which determines return on these investments (Gugler, Mueller, & Burcin Yurtoglu, 2003). According to Lemmon and Lins (2003) during the time of diminishing investment opportunities, ownership structure as a key character in corporate world which regulates the incentives for insiders to expropriate minority shareholders. Studies show that in East Asia ownership structure distributed over to several people enables managers for an effective control over the company with limited ownership in the cash flow (Porta, Lopez-de-Silanes, & Shleifer, 1999; Claessens, Djankov, & Lang, 2002; Lins, 2003). Shareholders protection might be limited in excessive concentration of ownership structure which enables controlling shareholders to expropriate minority shareholders (Shleifer & Vishny, 1986; Gomes, 2000; Lins, 2003). Similarly, Interest of minority and controlling shareholder are inverse in relation in countries which fail to protect shareholders rights (Claessens, Djankov, & Lang, 2002; Fan & Wong, 2002; Ducassy & Guyot, 2017).

In today's era of competition and wealth maximization competitive advantage is considered as the ultimate tool of success. Firms are focused towards competitive advantage to achieve the prospects of growth and to maximize shareholder's wealth, this depends on the efficiency of decisions taken by firm with respect to investment. Firms take investment decisions to maximize their assets with a hope to increase future revenue which also impacts on economic growth, during the period of 1952 to 2010 the total share of U.S firms on corporate investment on GDP ranged from lowest 6.1% to highest 9.4% (Kothari, Lewellen, & Warner, 2014).
Despite all this firms always look forward making investments more efficient than before as efficient investments will result in better use of firm's asset that will impact in enhanced performance impacting the output level of firm (Chen, Sung, & Yang, 2017). Managers who possess high abilities can pinpoint the exact information on investment opportunity which results in investment efficiency (Habib & Hasan, 2017).

2. Literature Review

2.2 Governance and Investment Efficiency

2.2.1 Ownership Structure

Jensen and Meckling (1976) elaborated on the agency conflict between principle and agent, while (Stiglitz, 1985; Bebchuk, 1994; Shleifer & Vishny, 1997; La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 2000) argued on the conflict arising between Controlling and Minority shareholders in which studies stated that the firm value is negatively affected because of investment inefficiency due to ownership concentration as the controlling shareholders have dominant control at the expense of minority shareholders which results in information asymmetry therefore controlling shareholders or block holders have high incentives diverting resources for personal benefit expropriating minority shareholders (Wruck, 1989). The problem of expropriation of minority shareholders by controlling shareholders in Asian countries due to low protection of investors (Gao & Kling, 2008; Cheung, Jing,, Lu, Rau, & Stouraitis, 2009; Wang & Ye, 2014). Gomes and Novaes (2001) proposed that large shareholders form a controlling group who will approve the project only if every member enjoys the benefit from that project. Chen, Sung, and Yang (2017) found that there is an inverse relationship between investment efficiency and ownership concentration as ownership with high level of concentration is harmful for investment efficiency because controlling shareholders possess more authority to expropriate the rights of minority shareholders.
H1. Ownership Concentration has a negative effect on investment efficiency.

2.2.2 Managerial Ownership

If management possess the ownership in the firm then there is a positive effect of management ownership on the performance of a firm which also weakens the activities of tunneling by controlling shareholders (Chen, 2001; Gao & Kling, 2008). Coles, Daniel, and Naveen (2006) provide evidence that managerial ownership in stock options and shares encourages managers to apply riskier policies of choice which leads to more investment in research and development. Li, Moshirian, Nguyen, and Tan (2007) also report a positive relationship between managerial ownership and firm performance. Similarly, Hu and Zhou (2008) conducted study on managerial ownership and performance of a firm on non-listed firms from China they found that firm which have managerial ownership are better in performance as compared to the firms with managers who have no stake in shareholdings, furthermore their study revealed that above 50% ownership the relationship of managerial ownership and firm performance becomes negative which means

that this relationship is non-linear. On the other hand, Jensen and Meckling (1976) stated that small level of ownership of management remains unsuccessful to maximize the wealth of the shareholders as they have the encouragement to consume benefaction. Further argument reveals that managerial ownership is positively associated with risk-taking behavior which aligns with the argument that ownership of the management inflames the dispute between stock and bond holders (Chen & Steiner, 1999). John, Litov, and Yeung (2008) supported this argument that large managerial ownership may lead to unprogressive policies of investment leading to letting go of projects with high NPV at the expense of other shareholders. Spitz and Mueller (2001) also supported this argument, their findings found a nonlinear effect of managerial ownership which means that if managerial ownership increases above a certain level they will extract private benefits. Dixon, Guariglia, and Vijayakumaran, (2015) supported these findings that high probability is present to enter in export markets when managerial ownership is increasing till a threshold point of 23-27%, ownership exceeding from this point leads to discouraging activities internationally. Thus, from the literature above following hypothesis can be formulated;
H2: Managerial Ownership has a positive impact on investment efficiency.

2.2.3 Institutional Ownership

Monitoring the managerial staff effectively is one of the most important role of institutional investors which results in improved performance of a firm and minimized agency cost, thus improving performance of firms with poor governance systems is a fruitful opportunity in terms of advisory as well as screening abilities for institutional investors (Jensen & Meckling, 1976; Shleifer & Vishny, 1986; Admati, Pfleiderer, & Zechner, 1994). Chen, Harford, and Li (2007) demonstrated in their study that institutions who are independent and speculate investments in long term possesses expertise at the time of takeover. Therefore, variety of observations and check on managerial activities are performed by distinctive institutional investors (Brickley, Lease, & Smith Jr, 1988; Almazan, Hartzell, & Starks, 2005; Chen, Harford, & Li, 2007). Cornett, Marcus, Saunders, and Tehranian (2007) demonstrated that company's operating performance is enhanced by the screening of institutional investors who have less business bonds with targeted firms. Studies show a significant and positive correlation between institutional ownership and performance of a firm and argued that personal gain of management is minimized and firm performance in operations is maximized when the management is under the observation institutional investors (McConnell & Servaes, 1990; Nesbitt, 1994; Smith, 1996; Del Guercio & Hawkins, 1999). Gompers and Metrick (2001) supported this argument and reported that performance of a firm and institutional ownership is directly linked as institutional ownership increases better check and balance is imposed therefore, the performance of the firm increases. Yuan, Xiao, and Zou (2008) conducted study on Chinese companies, they argued that since year 2000 institutional investors had access to stock market and showed that performance of Chinese firms were enhanced by institutional ownership. Elyasiani, Jia, and Mao (2010) findings supported this argument and stated that management is observed efficiently, and performance of the firm is enhanced by the presence of institutional investors. Thus, from the above literature above we can formulate following Hypothesis;
H3: Institutional ownership has a significant impact on investment efficiency.

2.2.4 Mutual Funds

Number of studies have been conducted recently on the efficiency of institutional investors in corporate governance activities which elaborated that mutual fund have a positive impact on

corporate governance which increases investment efficiency and the performance of the firm due to their efficient monitoring on the management. Yuan, Xiao, and Zou (2008) conducted study from 2001-2005 elaborated that efforts of authorities in the promotion to invest in mutual funds has proved fruitful which has increased beneficial in corporate governance mechanisms. In their study found that with the increase in the ownership of mutual funds the efficiency and performance of the firm increases hence there is a positive relationship between mutual funds and performance of a firm which brings investment efficiency. Chen, Harford, and Li (2007) conducted study in USA on listed firms and argued that mutual funds play a specialized monitoring role and conduct efficient activities which results in improved corporate governance and performance. Aggarwal, et al. (2011) supported this argument and found similar results from US and non-US firms, they elaborated that governance becomes stronger with the presence of mutual funds. Yuan, et al. (2008) and Aggarwal, et al. (2014) conducted study on Chinese governance system and argued that governance mechanism becomes more effective with the presence of mutual funds as these institutions have extensive stock market history as compared to other financial institutions who have little history and are not big enough in size furthermore, they reported that in China by 2012 mutual funds investors were one of the largest investors due to their efficiency and monitoring role. Chung and Zhang (2011) elaborated the governance quality is increased when the ownership of shares is held by the institutions. McCahery, Sautner, and Starks (2016) argued on shareholder activism and stated institutional shareholders i.e. mutual funds engage into shareholder activism as one of the most important factors for institutional investors is corporate governance.

Chen, Sung, and Yang (2017) conducted study on Chinese SOEs and found that increase in mutual funds increases efficiency in investment furthermore they elaborated that as compared to different financial institutions ownerships who pool their investment in the shareholding of a firm, mutual fund is more efficient and apply a positive impact on investment efficiency. Hu, et al. (2012) conducted study in Taiwan to understand the 300 mutual fund efficiencies during 2006 to 2010 and found that the highest efficiency was during the period of 2009 while due to financial crisis the lowest efficiency was seen in 2008. According to Smith, (1996) and Woidtke (2002) the role of institutional owners such as mutual funds is to screen the management of a firm which is beneficial for performance of a firm as well as reduces the agency problem between owners and managers. Cornett, et al. (2007) examined the impact of variety of institutional investors (e.g. mutual fund) on corporate governance and found that institutions which are pressure sensitive such as mutual funds have a positive impact on the performance of the firm as they have minimum business relationship and provide an efficient role in the monitoring of management. Following the literature stated we formulate the following hypothesis;

H4: Mutual Funds have a significant positive impact on investment efficiency.

2.2.5 Board Size

The part of the top managerial staff is to act and speak to the interests of the investors and additionally to screen and supervise the managerial staff (Phan & Yoshikawa, 2000). There are two different types of theories on the size of board which affects a company. On one hand studies argue that the greater size of the board is more effective as compared to a smaller one which enhances the investment and the screening activities of the board members on the management. Authors argue that there is a positive connection between board size and the performance of a firm since a greater board converts into diversified skills, higher knowledge,

enhanced competency and versatile experience which results in the successful checking of the management therefore, the workload can likewise be appropriated to numerous individuals (Kiel & Nicholson, 2003; Alzoubi, 2012). Investment level can be influenced by the positive association between the size of the board and the quality of accounting (Peasnell, Pope, & Young, 2005). Beasley and Salterio (2001) elaborates that Bigger boards have more expert executives who possess appropriate knowledge in terms of financial reporting thus auditors are challenged more often on issues in financial reporting. Bigger boards encourage more prominent dialogues on corporate issues by building observing advisory groups assigning them with tasks which, thus, brings more relevant and noteworthy result on information straightforwardness (Klein, 2002; Anderson, Mansi, & Reeb, 2004). Bigger size of board contains experienced diversity which prompt decent variety in industry encounter, instruction, conclusions, ability, and aptitudes that enables board individuals to adequately screen and exhort managerial staff (Kiel & Nicholson, 2003). Upadhyay and Sriram (2011) demonstrate that prominent information straightforwardness and lower cost of capital is shown in organizations with bigger boards as they have more resources to screen the performance of the management as compared to smaller boards. Cheng (2008) shows that bigger board and variability of accruals have inverse relationship thus variability of accruals is decreased in the presence of larger boards. Anderson, Mansiand Reeb (2004) show that an inverse relationship exists between the size of the board and the cost of debt where smaller boards are weak monitors from the perspective of a creditor. Upadhyay (2015) supported this argument that credit ratings are high for bigger boards and realized cost of debt is lower. Therefore, bigger boards have higher capabilities and better capacity to screen the management (Góis, 2009). On the other hand, opposing point of view states that smaller boards are better as compared to the larger boards. Problems like Social loafing, communication, coordination, free riding will arise as the size of the board increases (Jensen, 1993; Eisenberg, Sundgren, & Wells, 1998). Dogan and Smyth (2002) reports that there is no impact of the size of board on the performance. Ponnu & Karthigeyan (2010) supported these findings and elaborated that company do not gain benefits from outside directors. Thus, from the literature we formulate following hypothesis;

H5: Board Size has positive impact on investment efficiency.

2.2.6 CEO Duality

Previous literature proposed two rival theories in terms of CEO duality and the performance of a firm i.e. Agency theory and Stewardship (Donaldson & Davis, 1991; Fama & Jensen, 1983; Eisenhardt, 1989). Agency theory elaborates that agents extract personal benefits without regarding the interest of the shareholders, therefore from the perspective of agency theory, CEO duality provides huge power to a single person which adversely influence firm's performance, cultivating management entrenchment and debilitating board checking (Finkelstein & D'aveni, 1994; Dalton, Daily, Ellstrand, & Johnson, 1998). Lublin (2009) and Krause, Semadeni, and Cannella Jr (2014) supported this argument and argues that the mechanisms of corporate governance are weakened by CEO duality. When the two leadership positions are not separated, the boards part in directing managerial advantage is diminished (Zona, 2012). According to Aktas, Andreou, Karasamaniand Philip (2018) who conducted study on internal allocation of capital found that in CEO duality the resources are inefficiently utilized and thus bringing negative effect to the value of the firm.

On the other hand, stewardship theory supports CEO duality stating that it supports the motivation and confidence in the management staff and ensures the stability of firm (Donaldson

& Davis, 1991). CEO duality compromises high expertise and knowledge, results in quick decision making and better incentives for the managerial staff therefore the performance of a firm is enhanced (Finkelstein & D'aveni, 1994; Boyd, 1995; Brickley, Coles, & Jarrell, 1997).He and Wang (2009) demonstrate that CEO duality fortifies the effectively beneficial outcome of knowledgeable resources on firm execution. Ballinger and Marcel (2010) report that interval CEO progressions are related with lower performance amid the period in which the between time serves, while CEO duality directs the effect of this sort of progression on firm execution. Yang and Zhao (2014) showed that in an environmental change of competition, the firms which have CEO duality have better corporate governance and better performance as compared to firms with who possess non-duality. Duru, Iyengarand Zampelli (2016) demonstrated that level of independence of board weakens the negative effect of CEO duality and performance of the firm. Thus, from the literature above we formulate the following hypothesis;
H6: CEO Duality brings negative impact on investment efficiency.

3. Methodology

3.1 Research Methodology

3.1.1 Population Size.

The population of this study is the non-financial firms listed at Pakistan Stock Exchange. The main reason for excluding the financial companies was the difference of financing restriction between financial and non-financial sector.

3.2 Investment Efficiency

To test our hypothesis, we followed the model of (Biddle, Hilary, & Verdi, 2009) to measure investment efficiency. Similar approach was adopted by (Chen, Sun, Tang, & Wu, 2011; Chen & Xie, 2011) also used this model to measure the investment efficiency of Chinese listed firms. We identified combinations of industry year that comprises of overinvestment or under investment on industry level

$$Investment_{i,t} = \beta_0 + \beta_1 SalesGrowth_{i,t-1} + \varepsilon_{i,t} \ldots\ldots\ldots Model\ 1$$

In each industry year group (i, t) investment is the average investment of all firms. Proxy for investment used is the Sales Growth which is the average of firm last three-year sales. ε is the residual and the absolute value of ε measures investment efficiency. A positive value of ε indicates overinvestment whereas the negative value of ε indicates underinvestment while 0 indicates that the firm is doing efficient investment.

3.3 Main Model

Absolute value of residual is the deviation from optimal investment because the residual indicates the overinvestment with positive value and underinvestment as a negative value both of which means inefficient investment (Chen & Xie, 2011; Richardson, 2006). Therefore, the residual capturing the deviation from optimal investment is expected to decrease (increase) if there is a positive (negative) impact of governance on investment efficiency. As the value of IE will decrease towards zero the investment efficiency will increase. After calculating the residual ε which tells about overinvestment and underinvestment IE, it is then used as dependent variable in multivariate regression as shown below:

$$IE_{i,t} = \alpha_0 + \alpha_1 TOP_{i,t} + \alpha_2 TOP2\_10_{i,t} + \alpha_3 CEODUALITY_{i,t} + \alpha_4 MF_{i,t} + \alpha_5 BOARD_{i,t} + \alpha_6 INOWN_{i,t} + \alpha_7 MEETING_{i,t} + \alpha_8 OCF_{i,t} + \alpha_9 LEV_{i,t} + \alpha_{10} GROWTH_{i,t} + \alpha_{11} SIZE_{i,t} + \sum YEAR + \varepsilon_{i,t} \ldots\ldots\ldots$$ Model 2

Percentage of shares held by the single largest shareholder is TOP. The sum of percentage of shares held by the second largest shareholder to tenth largest shareholder. CEODUALITY represents the agency cost between shareholders and management, this is a dummy variable which is one if the CEO is the Chief Executive Officer and the Chairman of the board, otherwise it is taken as zero if the Chairman and the Chief Executive Officer are different. BOARD is the number on executive, nonexecutive and independent directors on board of a company. INOWN is the number of shareholding ownership of an institution in a firm. MEETING are the board meetings held within the year. OCF is the net cashflow from operations. LEV is defined as the debt to equity ratio which was calculated by dividing the shareholder equity with the total liabilities. GROWTH is calculated by taking the average of sales of last two years' sales of a firm. SIZE is the sum of current and non-current assets for the present year with taking log of the total amount. Following (Chen, Firth, Gao, & Rui, 2006) MEETING, GROWTH, SIZE and OCF, LEV are control variables through which effect of financial status on investment efficiency is controlled.

4. Results and Discussion

4.1 Descriptive Statistics

Results of descriptive statistics of variables are shown in table 1 which includes standard deviation, mean, maximum and minimum. Our dependent variable Investment efficiency mean is 0.551 whereas the minimum value is 0.012 while the maximum value is 0.131. The standard deviation is 0.036. The mean of the largest shareholder TOP1 is 0.431 while the standard deviation is 0.246, the minimum value and the maximum value is 0.029 and 0.943 respectively.

From the TOP2_10 i.e. second largest shareholder till the tenth largest shareholder the mean is 0.390, standard deviation is 0.207, the minimum value is 0.184 while the maximum value is 0.846. Institutional ownership has average mean of 0.106 while standard deviation is 0.008, the minimum value of institutional ownership is 0.000 and maximum value is 0.662. Managerial Ownership has an average mean of 0.187 while the minimum value is 0 and the maximum value is 0.692, the standard deviation is 0.216.

Mutual funds have a mean value of 0.032, the minimum value is 0 and the maximum value is 0.33, the standard deviation is 0.05. CEO duality has the mean of 0.147, the standard deviation is 0.355, minimum value is 0 while the maximum value is 1. Board size has an average mean of 2.121, standard deviation is 0.164 while the minimum value is 1.945 and the maximum value is 2.397. Board meeting has average mean of 1.630, standard deviation is 0.235, minimum value is 1.386 and maximum value is 2.079. Control variable Leverage has an average mean of 5.290, standard deviation is 3.610, -0.131 is the minimum value and 7.956 is the maximum value.

Operating cash flow has the mean of 0.101, standard deviation of 0.174, minimum value of -0.467 and maximum value of 1.178. Size is another control variable with a mean of 15.840, standard deviation is 1.949, minimum value is 12.165 and maximum value is 20.132.

Growth is a control variable with the mean of 0.178 with the standard deviation of 0.441, the minimum value is -1.860 and the maximum value is 2.245.

Table 1 Descriptive Statistics

VARIABLE	MEAN	STD. DEV.	MIN	MAX
IE	0.055	0.036	0.012	0.131
TOP1	0.431	0.246	0.029	0.9431
TOP2_10	0.390	0.207	.0184	0.846
INOWN	0.106	0.008	0.000	0.662
MO	0.187	0.216	0	0.692
MF	0.032	0.05	0	0.33
DUAL	0.147	0.355	0	1
BS	2.121	0.164	1.945	2.397
BM	1.630	0.235	1.386	2.079
LEV	5.290	3.610	0.131	7.956
OCF	0.101	0.174	-0.467	1.178
SIZE	15.840	1.949	12.165	20.132
GROWTH	0.178	0.441	-1.860	2.245

4.2 Regression Analysis

Impact of Ownership structure and Corporate Governance on Investment efficiency

Table 2 describes the impact of ownership structure, corporate governance on investment efficiency. The value of coefficient describes the slope of impact while the value of P describes the significance of impact. Following (Chen & Xie, 2011; Richardson, 2006) the impact is examined in terms of investment inefficiency of ownership structure, corporate governance on investment efficiency.

The table 2 shows the regression analysis using dynamic GMM model. The value of TOP1 coefficient (α_1=0.0448, P-value=0.000) shows that TOP1 has positive impact on IE, which reveals that ownership concentration has a significant and negative impact on investment efficiency. As the concentration increases, investment efficiency decreases. The value of coefficient 0.024 is positive while the value of P for TOP2_10 i.e. second largest shareholder till the tenth largest shareholder is 0.037 which is significant and less than 0.05. This shows that as the concentration of single largest ownership TOP1 and second largest till tenth largest ownership TOP2_10 increases, investment efficiency is decreased. Thus, our Hypothesis 1 is accepted and fully supported. These results are also supported by (Andres, 2011; Chen, Sung, & Yang, 2017) which states that investment efficiency is negatively associated with ownership concentration, as the concentration increases it becomes more harmful for efficient investments as controlling largest shareholder in a concentrated ownership focuses more on internal financing instead of equity financing which will reduce concentration, thus, cash constraints are increased

at the expense of minority shareholder while controlling shareholder enjoy private benefits and have the power to expropriate the rights of minority shareholders.

The Value of coefficient is -0.0168 while the P-value for Managerial Ownership is 0.062 which means that as managerial ownership increases, investment efficiency increases. Thus, our hypothesis 2 is supported. These findings are supported by the studies of Li, et al., and Hu and Zhou (2008) who also found that managerial ownership is positively related with firm performance as the stake of managers increases investments are utilized properly therefore investment efficiency increases leading to the increased performance of the firm.

The value of P for Institutional Ownership is 0.464 which is greater than the value of 0.05 which means that institutional ownership has insignificant impact on investment efficiency. These results do not support our Hypothesis 3 and therefore leading to the rejection of H3. Faccio and Lasfer (2000) and Lee (2008) also found an insignificant relation of institutional ownership in their studies.

Table 2: GMM Model Estimates

	COEF.	**STD ERR**	**P>|Z|**
CONS	1.292256	.701	0.065
TOP1	.0448***	.011	0.000
TOP2_10	.0243**	.011	0.037
MO	-.0168*	.055	0.062
INOWN	.0058	.008	0.464
MF	-.0094**	.004	0.026
DUAL	.0340**	.0169	0.045
BS	.0432	.105	0.683
BM	.0046	.021	0.831
LEV	-.0061***	-.006	0.000
OCF	.0041	.0240	0.863
SIZE	-.0831**	.036	0.024
GROWTH	-.012946	.008	0.110

Note: 0.01*** 0.05** & 0.1*. IE is investment efficiency. TOP1 is the single largest shareholder, TOP2_10 is the second largest shareholder till tenth largest shareholder. INOWN is institutional ownership. MO is the managerial ownership. MF are mutual funds. DUAL represents duality of CEO. BS represents board size. BM are meetings held by the board. LEV is debt to equity ratio. OCF are operating cashflows. SIZE is the sum of current and non-current assets. GROWTH is the average of annual sales.

The value of coefficient for Mutual funds is -0.0094 while the value of P is 0.026 which is significant and less than the value of 0.05 This shows that with the increase of mutual funds in an organization investment efficiency increases. Thus, our hypothesis 4 is fully supported and accepted. These results support the argument and findings of (Smith, 1996; Woidtke, 2002; Chen, Sung, & Yang, 2017) who stated that unlike other financial institutions existence of mutual funds in an organization increases investment efficiency as mutual funds are better monitors of the management, reduces agency problem and increases firm performance therefore mutual funds exert a strong and positive impact on investment efficiency.

For CEO duality the value of coefficient is 0.340 while the P-value for CEO duality is 0.045 which is significant and less than the value of 0.05. This means that in the presence of CEO duality, investment efficiency is reduced. Thus, our Hypothesis 6 is fully supported and accepted. Findings of (Lamont, 1997; Shin & Stulz, 1998; Rajan, Servaes, & Zingales, 2000; Scharfstein & Stein, 2000; Boyd, 1995; Aktas, Andreou, Karasamani, & Philip, 2018) supports these results which states a CEO who is on dual positions engage in wasteful activities by overseeing good projects and undertaking weak projects thereby reducing the efficiency of investment and the value of the firm in order to maximize private benefits.

The value of coefficient for Board size is 0.0432 while value of P is 0.683 which is more than the value of 0.05. The value of P is insignificant therefore leading to the rejection of our hypothesis 5. Dogan and Smyth (2002) supported this argument in their study and found similar results under concentrated ownership structures. Eisenberg, Sundgren and Wells (1998) also elaborated that as the size of the board increases problems such as Social loafing, communication, coordination, free riding will arise.

5. Conclusion

During the past years in corporate finance, efficiency in investments has gained the interest of numerous of researchers. The issue of this research focuses on the listed non-financial firms in Pakistan as ownership concentration is high and large shareholders are commonly found as family owners (Porta, Lopez-de-Silanes, & Shleifer, 1999; Cheema, Bari, & Saddique, 2003). The study focused the impact of both external and internal governance mechanisms on the efficiency of investment on non-financial listed companies in Pakistan. To best of our knowledge limited study on such issue is conducted in Pakistan.

The findings of our study reveal that with decrease in the concentration level of the firm, investment efficiency is likely to increase. As the concentration in ownership increases, investment efficiency decreases, and investment inefficiency increases. Similarly, in the absence of CEO duality the investment efficiency is increased in other words, when the chairman on the board and CEO are two different persons, investment efficiency increases as in the presence of duality, CEO may interfere with the monitoring capabilities of the board. Moreover, as compared to other types of institutional ownership, Mutual funds are found to have a significant impact on investment efficiency therefore in the presence of mutual funds investment inefficiency is reduced. Similarly, with the increase of managerial ownership, investment efficiency is increased as managers have stake in the organization therefore as a shareholder they will focus on their wealth maximization; while institutional ownership and size of the board have insignificant impact on investment efficiency.

Efficient investments are beneficial for both firm as well as the shareholder. As the value of firm increases, the wealth of shareholder increases which is the goal of good governance. Therefore, governance is closely linked with investment efficiency and protection of shareholders interest.

To increase investment efficiency, the mechanisms of corporate governance should be improved. Pakistan is one of the emerging markets with high room for improvements. Industries should focus on equity financing more as compared to debt financing this will reduce the concentration of the ownership and will promote multiple large shareholders which will improve the efficiency of investment and performance of the firm.

Firms should increase Mutual fund ownership as mutual fund institutions are more efficient as compared to other financial institutions and have a longer history in the stock markets. Their monitoring capabilities and skill set is versatile which decreases inefficiency and promotes efficient investments.

As mentioned in the research CEO Duality should be minimized as CEO duality increases inefficient investment and decreases investment efficiency. Duality or CEO may be beneficial for fast decision-making but is not beneficial for rational decision-making. Therefore, for efficient investments the duality of CEO should be minimized.

Board Size should include independent non-executive directors. The study reveals that higher number of board size increases investment inefficiency and reduced investment efficiency. These results may vary if the concentration is reduced.

The major limitations of the study are time and resources. Research was carried out in minimum timeframe while the maximum output was provided. Resources such as financial reports of the organization were not time specific. Unpublished and missing annual reports and financial statements made the research process difficult and time-consuming therefore the organizations included were those who published their annual reports without any gap.

Another limitation of this research is the sample size which is not generalizable in terms of international context due to missing reports and limited sample size. Measurement of efficiency of investment can studied by using variety of other aspects, for example our study does not include the R&D expenditures.

This research is focused on the impact of ownership structure and corporate governance on investment efficiency. For Future research it is recommended that authors should increase the sample size and integrate cross country data as well as international firm data. Another recommendation for the future research is authors can incorporate R&D expenditure or the moderating effect of Sharia and Non-Sharia compliant firms as a moderator on investment efficiency as Islamic Financing is also an emerging field with positive returns on investment, to best of our knowledge no research has been conducted by taking Sharia compliant firms as a moderator on investment efficiency.

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